HEPARIN-INDUCED THROMBOCYTOPENIA MONITORING & MANAGEMENT

InpharmD™

Overview of HIT

- Heparin-Induced Thrombocytopenia (HIT) is a rare, immune-mediated reaction to heparin, occurring in 0.1% to 5% of patients depending on heparin type and clinical context. It often manifests 5-14 days after starting heparin, causing a ≥50% drop in platelet count and an increased risk of thrombosis.
- HIT is more common with unfractionated heparin (UFH), particularly in surgical patients, while low- molecular-weight heparin (LMWH) carries a lower risk. Early platelet monitoring is essential to detect HIT promptly and prevent complications like deep vein thrombosis or pulmonary embolism.

Risk Stratification

Low-Risk (<0.1%)
Typically patients on LMWH unless after major surgery/trauma
Monitoring: Not recommended (conditional, very low certainty)

Intermediate-Risk (0.1% - 1.0%)
Patients on UFH or LMWH post-major surgery/trauma
Monitoring: Every 2-3 days from day 0 if heparin used in the past 30 days; from day 4 otherwise.

High-Risk (>1.0%)
Surgical/trauma patients on UFH
Monitoring: Every other day, starting from day 0 or day 4 depending on recent heparin exposure.

Diagnosis

4Ts Score:

- Evaluates Thrombocytopenia, timing of platelet fall, thrombosis signs, and other causes.
- Helps estimate HIT probability, guiding further testing.

Laboratory Testing:

- Immunological Assays (e.g., ELISA) to detect PF4 antibodies; sensitive but less specific.
- Functional Assays (e.g., Serotonin Release Assay, SRA) for confirming platelet activation; high sensitivity and specificity.

Monitoring

Initial Monitoring:

- Obtain baseline platelet count before initiating heparin (UFH or LMWH).
- Monitor starting day 0 if prior heparin exposure within 30 days; start day 4 otherwise.

Routine Monitoring:

- Platelet counts in intermediate/high-risk patients:
  - Every 2-3 days (intermediate risk)
  - Every other day (high risk)

Early Detection:

- Look for platelet counts <150 × 10^9/L or a ≥50% reduction from baseline, especially between days 5-14 of heparin exposure.

Key Management Points

Immediate Action:

Discontinue heparin upon HIT suspicion; use non-heparin anticoagulants like argatroban or fondaparinux.

Monitor Clinical Signs:

Pay attention to new/worsening venous or arterial thrombosis, unusual reactions post-heparin, or skin necrosis.

Follow-up Testing:

Obtain blood samples 1-2 days after stopping heparin; repeat testing if recent heparin exposure.

Clinical Implications

- The risk of HIT is highest with UFH, especially bovine-derived UFH. LMWH carries a lower risk but still requires vigilance.
- HIT should be managed as a **clinicopathologic syndrome**, requiring both clinical and lab evidence for confirmation.

Abbreviations:

LMWH: Low-Molecular-Weight Heparin | 4Ts Score: Thrombocytopenia Timing Thrombosis Test | SRA: Serotonin Release Assay
UFH: Unfractionated Heparin | HIT: Heparin-Induced Thrombocytopenia | ELISA: Enzyme-Linked Immunosorbent Assay | PF4: Platelet Factor 4